and psychoanalysis to elucidate the difficulties experienced by European colonists in trying to understand the natives of the colonies. His observations relate chiefly to the Malagasies, the natives of Madagascar, but he considers that his conclusions are of much wider application.

M. Mannoni begins with a discussion of the " dependent " behaviour of the Malagasies—and of other so-called " primitive " peoples—which forms a fruitful source of misunderstanding. He describes the usual sequence of events:

> A Malagasy receives from a European some favour which he badly needs, but would never have dreamed of asking for. Afterwards he comes of his own accord and asks for favours he could very well do without; he appears to feel he has some sort of claim upon the European who did him a kindness. Furthermore, he shows no gratitude—in our sense of the word—for the favours he has received. It is absolutely essential to interpret this behaviour correctly if we are to comprehend a type of mentality so different from our own.

The author gives an example of " dependence " drawn from his own experience. He took lessons in tennis from a young native, paying for each lesson at the time. At first the association of teacher and pupil went no further than a few meetings at the tennis court and an occasional salutation in the street. The native was attacked by malaria and cured with quinine supplied by the author. A change then began. The native, without a trace of embarrassment began to ask for certain small presents. He thought he had found a protector upon whom he could rely and need fear no danger. He was in " dependence." This young tennis coach was, however, exceptionally sensitive, and he soon realized that his relation to M. Mannoni was not one of " dependence," and it came to an end. But, writes M. Mannoni, " I could not have broken it off later except at the risk of making him feel abandoned, perhaps betrayed, and of rousing his enmity or even hatred."

The book is divided into three parts, the first of which describes the main characteristics of Malagasy mentality especially in relation to family life and the cult of the ancestral dead. Part II analyses the attitudes of European colonists to the natives, and Part III discusses various problems of " psychological dependence and political independence " that arise in modern colonization. It appears that upon closer examination the psychological differences between Europeans and natives are not so great as they may at first sight appear to be.

The book, interesting and informative, is written in non-technical language and appears at a time when " colonialism " is attracting considerable public attention.

G. F. McCLEARY.

ZOOLOGY

Thorpe, W. H. *Learning and Instinct in Animals.* London, 1956. Methuen. Pp. viii + 493. Price 55s.

DURING the past ten years ethology (the science of animal behaviour) has suddenly come on the map. It is now a subject which can be taught systematically; it is also being studied, as never before, by psychiatrists, psychologists and even physiologists for the contribution it can make in their own fields. W. H. Thorpe is one of a small band who have made this possible; and, being a zoologist especially interested in learning, he has been able to link ethology with the psychologists' massive research on learned behaviour in mammals. This is indeed a major feature of his book.

Part 3 of the book, making up about five-eighths of the text, is a very comprehensive review of learned behaviour throughout the animal kingdom, including some discussions of special theoretical problems; insects and birds are given most attention, in accordance with the great volume of research on them. Mammals have only a short chapter, concerned largely with their innate (instinctive) behaviour, but mammalian behaviour is more fully treated in Part 2.

Part 2 is a thoughtful and erudite survey of learned behaviour and of the concepts which have arisen from its study: habituation, conditioning, trial-and-error, latent

learning, and insight learning. Finally, or rather first, there are two chapters on directiveness and purposiveness, and on the nature of " drive." Probably (as Thorpe suggests) many who read the whole book will take it in this reversed order; that is, the order in which the subject has, on the whole, developed, rather than that which Thorpe regards as the " natural and logical order of . . . the general to the special."

The book is exceedingly well documented and has a magnificent bibliography—something for which many research workers are going to be thankful. It is indeed not a textbook: to make full use of it one needs a sound knowledge of contemporary ethological and psychological theories, since Thorpe is concerned to provide a critique of these theories rather than to expound them. Advanced students will find it useful as a source, but the main users will be those working in some field of behaviour studies. For them, perhaps the most valuable—of many valuable things in the book—will be the discussions of habituation (which is linked with the psychological concept of inhibition), conditioning and latent learning; and the relationships suggested between the phenomena of learned behaviour and those of " instinct."

Writing a book of this sort is a task of extraordinary difficulty, for several reasons. Among the most tiresome problems are those of semantics, and these have not been entirely overcome. Not all key terms are given clear and unambiguous definitions (some are defined, almost as an afterthought, in footnotes which would be better incorporated in the text); and the definitions that are given are not always rigorous. For instance, we are told on p. 14 what the term " innate " may " imply," but not its precise meaning as it is used in the book. Further, one of the implied meanings is said to be " inherited or genetically fixed and therefore characteristic of the species "; but many characters are genetically fixed but not characteristic of the species: indeed, nearly all characters studied by genetical methods are necessarily *not* present in all members of the species. Again, on the same page, in a footnote, " drive " (in its " widest sense ") is given so wide a definition as to deprive it of all effective meaning. If the term is to be used, it should be defined unambiguously and—equally important—a warning should be made of the other meanings—implied or explicit—to be found in the literature.

Again, we are asked to " assume provisionally that insight is the perception of relations " (p. 126), but we are not told what meaning to attach to the term " insight " when we encounter it elsewhere in the text. On page 61 we learn that it is best to use " habituation " *primarily* (reviewer's emphasis) to mean " the long-term stimulus-specific waning of a response "; but on page 66 it is defined " broadly " in a different way; and on the next page still we hear of situations " ranging from pure habituation on the one hand to the most complex types of interference on the other." Granted that no form of words can match the infinite complexities of natural phenomena, it must be admitted that indefiniteness of this sort invariably leads to confusion.

It may seem churlish to subject so valuable and so remarkable a work to this sort of criticism; but ethology stands in great need of clearer modes of expression and it may be hoped that Thorpe, in a second edition, will make his presentation of these concepts more precise and so more useful—especially to students. But whether he does this or not, he must be congratulated on—and thanked for—a major contribution to the study of behaviour.

S. A. BARNETT.